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Haas[17] on this question. Determination of the total acidity and actual acidity by means of titration, and the gas chain and buffer solutions, shows that the reaction of the cells studied ranges from about P_H+3 to P_H+7. If we call the buffer solution acid up to P_H+7, neutral when at P_H+7, and alkaline when higher than P_H+7, it is evident that it is unsafe to call cell sap acid when red, neutral or alkaline when blue, and markedly alkaline when green, unless the color changes of the particular pigment are first studied by some method, such as that of using buffer solutions of known hydrogen ion concentration.

One other study may also be mentioned in this connection. These chemical investigations inspired a study by Shibata, Nagai, and Kishida[18] of the physiological and biological significance of the anthocyans and flavones in plants. The evidence obtained established a somewhat unexpected fact, namely, that the flavone derivatives are one of the cell contents of very common occurrence in the plant kingdom. In fact, they are quite as common as chlorophyll, tannins, sugars, starches, and proteins. They are not only found in the yellow coloring matter, but also in the cell sap of the epidermis and in the underlying tissue of plants in general. In only a small number of plants is a complete absence of chromogen proved; for example, in the white corn flower (*Centaurea cyanus*), oxalis (*Oxalis violacea*), pink (*Dianthus caryphyllus*), and pelargonium (*Pelargonium cucullatum*). The function of the flavone derivatives dissolved in the cell sap is to protect the living protoplasm and the important biochemical agents involved from the injurious action of the ultraviolet rays of sunlight by absorbing them at the peripheral layer of the plant organism. The plausibility of this assumption is justified by an extensive study of the flora of alpine and tropical regions. The green leaves of deciduous trees, which produce anthocyan pigments in autumn, contain a considerable amount of flavones. The production of autumnal color is due to the biochemical change, that is, the reduction of already existing flavones in the leaf, initiated by the physiological condition at the end of the growing season, without having special ecological significance.

This brief survey of recent progress in anthocyan chemistry makes it seem very probable that in the near future we may have a complete classification of these pigments, based upon accurate and definite knowledge of the chemical structure of the substances involved. It is to be hoped that the work may make substantial progress in spite of the war.—Clarence J. West.

Taxonomic notes.—Evans[19] has published a monograph of the North American species of *Marchantia*, recognizing 9 species, one of which (*M. breviloba* of Jamaica) is new. The extensive discussion of species is preceded by an account of the morphology of the genus. The detailed description of each species is accompanied by the synonymy, citations of exsiccatae, and a very full discussion.

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[17] Haas, A. R., Jour. Biol. Chem. **27**:233. 1916; Bot. Gaz. **63**:232. 1917.

[18] Shibata, K., Nagai, I., and Kishida, M., Jour. Biol. Chem. **28**:93. 1916–17.

[19] Evans, Alexander W., The American species of *Marchantia*. Trans. Conn. Acad. Sci. **21**:201–313. *figs. 20.* 1917.

In a revision of *Herberta*, the same author[20] discusses 4 species, 2 of which are described as new.

FERNALD[21] has described a new *Cardamine* (*C. Longii*) from Maine, which grows in "shaded rock-pockets and crevices covered at high tide." In the description it is contrasted with *C. pennsylvanica*.

MACKENZIE[22] has described a new species of *Carex* (*C. convoluta*), which ranges from Maine to Manitoba and south to the Gulf States. Heretofore it has been included in *C. rosea*.

PENNELL,[23] in continuation of his studies of the plants of the southern states, has described a new *Smilax* (*S. leptanthera*) from Georgia, closely allied to *S. tamnifolia*.

RENDLE[24] has described a new genus (*Maidenia*) of Hydrocharidaceae from West Australia, belonging to the Vallisnerieae.

ROCK,[25] in connection with the preparation of a monograph of certain genera of the Lobeliaceae of Hawaii, has published 9 new species and varieties of *Cyanea*, and 2 new varieties of *Lobelia*.

WIEGAND[26] has described a new species of *Eragrostis* (*E. peregrina*), which occurs as a weed in this country, as well as in Germany and Japan, and which is unknown as yet in an indigenous state. It was separated from the well known *E. pilosa* of Europe and America, and had been named *E. pilosa* var. *condensata* Hackel.—J. M. C.

A peculiar spore distribution.—According to ROMELL,[27] the brown powder commonly observed covering the upper surfaces of sporophores of

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[20] EVANS, ALEXANDER W., Notes on the genus *Herberta*, with a revision of the species known from Europe, Canada, and the United States. Bull. Torr. Bot. Club **44**:191–222. *pl. 8.* 1917.

[21] FERNALD, M. L., A new *Cardamine* from southern Maine. Rhodora **19**:91, 92. 1917.

[22] MACKENZIE, K. K. Notes on *Carex*. X. Bull. Torr. Bot. Club **43**:428. 1916.

[23] PENNELL, F. W., Notes on plants of the southern United States. II. Bull. Torr. Bot. Club **43**:412. 1916.

[24] RENDLE, A. B., *Maidenia*, a new genus of Hydrocharidaceae. Jour. Botany **54**:313–316. *pl. 545.* 1916.

[25] ROCK, JOSEPH F., Notes on Hawaiian Lobelioideae, with descriptions of new species and varieties. Bull. Torr. Bot. Club **44**:229–239. *pls. 9–16.* 1917.

[26] WIEGAND, K. M., A new species of *Eragrostis*. Rhodora **19**:93–96. 1917.

[27] ROMELL, LARS, Hvarifrån kammer det Bruna Pulvrit å öfre Sidan af *Polyporus applanatus* och andra *Ganoderma*-arter? Svensk. Bot. Tidskr. **10**:340–348. 1916 (with English summary).